

## REMARKS

Claim Objections

In the Office Action mailed June 2, 2006, the Examiner stated “*Claims 1 -42 are objected to because of the following informalities: The meaning of the phrases ‘high molecular weight’ and ‘medium molecular weight’. Appropriate correction is required. For purposes of examination, the claims will be interpreted to be directed to 52-68 wt % high density polyethylene.*”

The Applicant respectfully traverses these objections. The terms ‘high molecular weight’ and ‘medium molecular weight’ are modifying adjectives commonly used in the plastics industry in describing varieties of polyethylene material. As shown on the accompanying data sheets, Exhibit A – Alathon L5005 and Exhibit B – Alathon M 5865PA, high density polyethylene comes in at least two varieties. Alathon L5005 is a high density, high molecular weight polyethylene, a common variety found in many plastic bags. Alathon M 5865PA, on the other hand, is a high density, medium molecular weight polyethylene.

This variety is somewhat more unusual and has a number of useful characteristics such as extremely low gel content, high stiffness and narrow molecular weight distribution. When combined in the specified proportions (about 40-48 wt. % high density, high molecular weight polyethylene, 12-20 wt. % high density, medium molecular weight polyethylene, 20-30 wt. % linear low density polyethylene) unexpected adhesion properties between adjacent bags happen. These properties allow for the creation of a self-opening bag system without the need for localized pressure points, punches, adhesives or similar methods.

Based upon the above, Applicant believes that no correction is required as the terms employed are well known to those ordinarily skilled in the plastics art. Therefore, Applicant

requests that the objections be withdrawn and that the claims be examined as written.

### Claim Rejections – 35 USC §103

The Examiner stated “*Claims 1, 4 -23 and 26 -42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (U.S. Patent No. 6,435,350) in view of Williams (U.S. Patent No. 5,078,677).*”

*With regard to Claim 1, 7 - 8 and 29 - 30, Huang et al disclose a self- opening bag stack (bag pack; column 7, lines 32 - 33) comprising a plurality of stacked bags (column 11, lines 40 - 44) which is a film bag (column 17, line 46); the bags are frangibly bonded (column 7, lines 53 - 55), and are therefore releasably adhered in substantial registration (column 5, lines 35 - 38); each of the bags include front and rear film walls (column 7, lines 38 - 40) having first and second side edges, a top edge and a bottom edge (column 7, lines 40 - 44), the front and rear walls integrally joined at the first and second side edges (joined together by pleated side walls; column 7, lines 40 - 44) and secured together at their bottom edges (by sealing; column 7, lines 40-44) and defining an open mouth portion adjacent the top edges (column 7, lines 38 - 40); the entire outer surface of the bag is corona treated (column 2, lines 5 - 9); the bag comprises plastic (column 12, line 53); Huang et al. fail to disclose a bag comprising 52 - 68 wt.% high density polyethylene and 20-30 wt. % linear low density polyethylene.*

*Williams teaches a bag (column 3, lines 30 - 32) comprising 52 - 68 wt.% high density polyethylene and 20 - 30 wt. % linear low density polyethylene (column 6, lines 12 - 20) for the purpose of obtaining a bag which is produced without stress relief notches (column 3, lines 28). One of ordinary skill in the art would therefore have recognized the advantage of providing for the composition of Williams in Huang et al, which comprises a bag, depending on the desired*

*production of the end product.*

*It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a bag comprising 52 - 68 wt.% high density polyethylene and 20 - 30 wt. % linear low density polyethylene in Huang et al. in order to obtain a bag which is produced without stress relief notches as taught by Williams."*

With regards to Claim 1, the bags of the present invention are comprised of about 40-48 wt. % high density, high molecular weight polyethylene, 12-20 wt. % high density, medium molecular weight polyethylene, 20-30 wt. % linear low density polyethylene. The Examiner has cited the combination of *Huang et al.* and *Williams*. First, the patent number supplied for *Williams* (5,078,677) is assigned to *Gentelia et al.* Applicant could not identify a patent issued to *Williams* with a similar number relating to plastic bags. Assuming, *arguendo*, that *Williams* does describe a plastic bag having a 52-68 wt.% high density polyethylene and 20-30 wt. % linear low density polyethylene composition, *Williams* discloses a higher wt. % composition of high density (and presumably high molecular weight, the most common variety) polyethylene than the present invention (about 40-48 wt. % high density, high molecular weight polyethylene). More importantly, *Williams* does not disclose the use of high density, medium molecular weight polyethylene, a key ingredient in the present invention. As all of the elements necessary to construct the present invention are not present in either of the suggested references, Claim 1 cannot be found obvious over *Huang et al.* in view of *Williams*. Therefore, Claim 1 should be allowable. As Claims 2-22 depend, directly or indirectly, from Claim 1, they should likewise be allowable. Claim 23 also includes the element "12-20 wt. % high density, medium molecular weight polyethylene," an element not found in *Williams* as described by the Examiner. Thus Claim 23 should be allowable. Likewise, Claims 24-42, which depend from Claim 23 should

also be allowable.

The Examiner stated *“With regard to Claims 4 and 26, the bags disclosed by Huang et al are recyclable (column 1, lines 35 –40) Huang et al fail to disclose bags that comprise 10 –20 wt % recycled material; however, Huang et al disclose bags that are recyclable or disposable by incineration (column 1, lines 35 –40) and therefore disclose the selection of the amount of recycled material depending on the desired amount of necessary incineration. Therefore, one of ordinary skill in the art would have recognized the utility of varying the amount of recycled material to obtain the desired amount of incineration. Therefore, the amount of incineration would be readily determined by through routine optimization of the amount of recycled material by one having ordinary skill in the art depending on the desired use of the end product as taught by Huang et al.*

*It therefore would be obvious for one of ordinary skill in the art to vary the amount of recycled material in order to obtain the desired amount of incineration, since the amount of incineration would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Huang et al.*

The issue here is not whether the bags can be incinerated, but whether they will still have their adhesive properties with a given percentage of recycled material. The Applicant has determined that use of 10-20 wt. % recycled material comprising about 40-48 wt. % high density, high molecular weight polyethylene, 12-20 wt. % high density, medium molecular weight polyethylene, 20-30 wt. % linear low density polyethylene and 0-8 wt. % color concentrate will still allow the bags produced to have the required adhesion and thus the necessary self-opening capability. As the elements described in Claims 4 and 26 are not disclosed in *Huang* and as this reference does not provide the functional features resulting from

these elements, it would not be obvious to vary the ingredients of *Huang* to achieve the present invention.

The Examiner stated *“With regard to Claims 5 and 27, the linear low density polyethylene taught by Williams has a density of 0.93 or less (column 6, lines 60 -62); Williams therefore teaches a linear low density polyethylene in which 10 -15 wt. % has a density ranging from 0.923 -0.924 gm/cc.*

*With regard to Claims 6 and 28, the linear low density polyethylene taught by Williams has a melt index of 0.930 or less (column 7, line 3); Williams therefore teaches a linear low density polyethylene in which 10-15 wt. % has a melt index ranging from 0.25 -0.30 gm/10 minutes.*

*With regard to Claims 9, 15, 18, 31, 35 and 38, the stack taught by Huang et al comprises a cold staking area piercing and extending transversely through the bag stack for maintaining the bags in the bag stack in substantial registration (cold pin bonding; column 14, line 34).*

*With regard to Claims 10, 16, 19, 32, 36 and 39, the stack taught by Huang et al comprises a hot melt pin area piercing and extending transversely through the bag stack for maintaining the bags in the bag stack in substantial registration (hot pin welds; column 15, lines 33-35).*

*With regard to Claims 11 and 33, each of the bags disclosed by Huang et al includes longitudinally oriented side gussets (pleated side walls; column 7, lines 39 -40).*

*With regard to Claims 12, 14, 34 and 37, Huang et al disclose a dispensing rack having horizontal arms (projections; column 10, line 29-31; Figure 10), and a pin area piercing as stated above; Huang et al therefore disclose first and second opening penetrating and extending*

*transversely through the bag stack in an upper portion of the bags and spaced downwardly from the top edge, spaced inwardly from the first and second side edges and serving to support the bag stack on horizontal arms of a dispensing rack.*

*With regard to Claim 13, the bags disclosed by Huang et al. comprise an upper seam sealing the front wall to the rear wall to the respective top edges (column 2, lines 13-15) and a U-shaped cut -out disposed in an upper portion of the bag and commencing at a first point along the upper seam spaced inwardly from the first side edge and extending to a second point along the upper seam inwardly from the second side edge, the cut -out extending downwardly toward the bottom edges, thereby forming an open mouth portion and a pair of bag handles (column 7, lines 30-46; Figure 1).*

*With regard to Claims 17, the bag disclosed by Huang et al. comprises a central tab portion connected to the open mouth portion of the bags in the bag stack (column 7, lines 46 -48) and an aperture extending transversely through the bag stack within the central tab portion for suspending the bag stack from a dispensing member (suspension aperture (column 14, lines 43 - 45).*

*With regard to Claims 20-21 and 40-41, the central tab portion of each bag disclosed by Huang et al is detachably connected to said open mouth portion of the bags (a tab aperture, the bags being held together by frangible bond; the central tab portion of each bag therefore includes a frangible section, the frangible section extending from the aperture to an outer edge of the central tab portion and the frangible portion rupturing upon removal of the bag from the dispensing member).*

*With regard to Claims 22 and 42, the entire outer surface of the bag disclosed by Huang et al is corona treated, as stated above, and therefore has a surface tension on the corona*

*treated surface of at least 38 dynes.*

*With regard to Claim 23, the bag disclosed by Huang et al. is a t-shirt type bag (column 7, lines 40-41) and has laterally spaced upwardly extending bag handles, an open mouth portion between the handles and central support tab portion extending upwardly from the open mouth portion (column 7, lines 45 -48; Figure 1).*

*Claims 2-3 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (U.S. Patent No. 6,435,350) in view of Williams (U.S. Patent No. 5,078,677) and further in view of Mawson et al. (U.S. Patent Publication No. 2002/0107342).*

*Huang et al. and Williams discloses a bag as discussed above. With regard to Claims 2 - 3 and 24-25, Huang et al. and Williams fail to disclose a bag comprising 0.5 wt. % slip and antiblock compound and 1-3 wt. % calcium carbonate.*

*Mawson et al. teach a bag (paragraph 390) comprising 0.5 wt. % slip and antiblock compound and 1 -3 wt. % calcium carbonate (paragraph 394) for the purpose of obtaining a bag for heavy duty use (paragraph 390). One of ordinary skill in the art would therefore have recognized the advantage of providing for the slip and antiblock compound and calcium carbonate of Mawson et al. in Huang et al. and Williams, which comprises a bag, depending on the desired use of the end product.*

*It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for 0.5 wt. % slip and antiblock compound and 1-3 wt. % calcium carbonate in Huang et al. and Williams in order to obtain a bag for heavy duty use as taught by Mawson et al.*

*All of the Claims discussed here depend from Claim 1 or Claim 23, directly or*

indirectly. As Claims 1 and 23 should be allowable, as discussed *supra*, these claims should likewise be allowable.

Based upon the above arguments, Applicant urges that the application is now in condition for allowance.

Respectfully submitted,

Belasco Jacobs & Townsley, LLP

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By: 

David A. Belasco  
Registration No. 41,609  
Attorney for Applicant





Alathon®

L5005

EQUISTAR

A Lyondell Company

## High Density Polyethylene HMW Film Grade Melt Index 0.057 Density 0.949

### Applications

ALATHON L5005 is a high molecular weight high density copolymer that provides broad bimodal molecular weight distribution, high stiffness and good heat seal response and strength. Typical applications include merchandise bags, grocery sacks, trash can liners, produce bags and roll stock.

### Regulatory Status

L5005 meets the requirements of the Food and Drug Administration regulation 21 CFR 177.1520. This regulation allows the use of this olefin polymer in "...articles or components of articles intended for use in contact with food." Specific limitations or conditions of use may apply. Contact your Equistar sales representative for more information.

### Processing Techniques

Specific recommendations for processing L5005 can only be made when the processing conditions, equipment and end use are known. For further suggestions, please contact your Equistar sales representative.

### Physical Properties

Property	Nominal Value	Units	ASTM Test Method
Melt Index	0.057	g/10 min	D 1238
Density	0.949	g/cc	D 1505
Total Energy Dart Drop	2.05	ft-lbs/mil	D 4272
Elmendorf Tear Strength, MD (TD)	14 (35)	g	D 1922
Tensile Strength @ Yield, MD (TD)	3,800 (3,400)	psi	D 882
Tensile Strength @ Break, MD (TD)	8,500 (5,000)	psi	D 822
Elongation @ Break, MD (TD)	300 (420)	%	D 882
Secant Modulus, MD (TD)	115,000 (140,000)	psi	D 882

### Typical Process Condition Ranges:

BUR=3.5-4.5:1; Neck Height=6-9 Die Diameters; Die Gap (nominal), in.=0.040-0.050; Tower Height=Relatively Short; Output, Lb/Hr/In of Die Circumference=10-12; Melt Temperature - 390-420°F (199-216°C)

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Lyondell Chemical Company  
1221 McKinney, Suite 700  
P.O. Box 2583  
Houston, Texas 77252-2583  
(800) 615-8999  
<http://www.equistarchem.com>

2053/0503



## APPENDIX B

Friday, August 11, 2006

**Alathon® M 5865PA**

Equistar Chemicals, LP - Polyethylene, High Density

Unit System: 

## Actions

Legend (Open)



## General Information

## Product Description

ALATHON M 5865PA, formerly known as LYHD 010, is a medium molecular weight high density homopolymer for use in blown or cast film applications. This resin provides extremely low gel content, high stiffness and narrow molecular weight distribution. Typical applications for this resin are dry food packaging, cast film, overwrap and WVTR.

## General

Material Status	● Commercial: Active
Availability	● North America
Test Standards Available	● ASTM
Features	<ul style="list-style-type: none"> <li>● Density, High</li> <li>● Food Contact Acceptable</li> <li>● Gel, Low</li> <li>● Homopolymer</li> <li>● Molecular Wt. Dist., Narrow</li> <li>● Molecular Wt., Medium</li> <li>● Stiffness, High</li> </ul>
Uses	<ul style="list-style-type: none"> <li>● Film</li> <li>● Film, Cast</li> <li>● Packaging, Food</li> </ul>
Agency Ratings	● FDA 21 CFR 177.1520 <sup>1</sup>
Forms	● Pellets
Processing Method	<ul style="list-style-type: none"> <li>● Film, Blown</li> <li>● Film, Cast</li> </ul>

ASTM and ISO Properties <sup>2</sup>

Physical	Nominal Value	Unit	Test Method
Density	0.958	g/cm <sup>3</sup>	ASTM D1505
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	6.5	g/10 min	ASTM D1238
Films	Nominal Value	Unit	Test Method
Secant Modulus MD	115000	psi	ASTM D882
Secant Modulus TD	130000	psi	ASTM D882
Tensile Strength @ Yld MD	3500	psi	ASTM D882
Tensile Strength @ Yld TD	3600	psi	ASTM D882
Elongation @ Break MD	900	%	ASTM D882
Elongation @ Break TD	800	%	ASTM D882
Water Vapor Transmission	4.0	g/100 in <sup>2</sup> /day	ASTM E96

## Processing Information

Extrusion	Nominal Value	Unit
Melt Temperature	390	°F

## Notes

<sup>1</sup> When used unmodified for the manufacture of food contact articles, Alathon® M 5865PA will comply with Food Additive Regulations FDA 21 CFR 177.1520 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.

<sup>2</sup> Typical properties: these are not to be construed as specifications.